AMOBA: Innovation barriers of the millennial generation

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Abstract

The millennial generation is closely related to the Industrial Revolution 4.0, which focuses on digitalization and automation patterns in human life. There are six main barriers: usage perception barriers, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers. Therefore, the role of universities is needed in encouraging the millennial generation to create more contemporary innovations. This study aims to analyze the negative impact of internal and external barriers that affect the low innovation of the millennial generation. The research method is quantitative exploratory, with a total sample of 274 respondents from various private universities in Semarang City. The sampling method used purposive sampling, and the data collection technique used a survey with a questionnaire designed in certain procedure. Analysis of research results using multiple linear regression, which in principle can address the hypothesis statistically and comprehensively. The results of this study are usage perception barriers, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers have a negative significant effect on the low innovation level of the millennial generation. The importance of this research is to encourage university administrators to facilitate students to develop self-competence and create creative innovations.

Introduction

There are two educational orientations in nation-building: individual orientation and community orientation. Individual orientation and education play a role in the formation of educated people, namely through developing self-potential. The abilities of educated people in self-understanding, environment, adaptation efforts, having predictive, and anticipatory orientations. Thus, educated humans can be role models for others and have a role in building society (Wadi & Nurzaman, 2020). For this reason, educated humans must have a participatory advantage to realize a comprehensive social transformation. While community orientation, education has three leading roles: a conservative agent, an innovative agent, and an agent of change. As a conservative agent, education is operationally practical through learning activities oriented to cultivating and preserving indigenous socio-cultural values that have resilience. Thus, the community will have an identity in responding to the flow of globalization. As an innovative agent, education has a role in developing knowledge, understanding, disseminating, and applying it. Through this role, education will produce a learning community expressed by liking to seek information, use, and communicate it. Meanwhile, as an agent of change, education has consequences for applying educational innovation products, so education becomes a catalyst for social transformation (Chen et al., 2018).

The so-called instant lifestyle drives today's world, and mobile banking (M-Banking) services are one of the modern instant ways of life. The availability of M-Banking services provided by banking institutions to their customers has changed how daily activities such as daily transactions are carried out. It is also a new way for banks to improve customer satisfaction, reduce costs and improve profitability models (Susanto et al., 2022). M-Banking is a banking facility through cellular

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communication such as mobile phones with the provision of facilities similar to (Automatic Teller Machine) ATMs. With M-Banking services, banks try to facilitate client access to make transactions anywhere and anytime without going to the bank. Almost all banks in Indonesia have provided M-Banking services in the form of SIM toolkit (Data Service Menu) and plain text (SMS manual), otherwise known as SMS banking. SMS Banking is a term that refers to services provided by banks using SMS facilities to perform financial transactions and request financial information, such as account balances and transaction history (Dedehayir et al., 2017).

In the initial observations, from May to June at Private University, the authors observed conditions in the field to directly describe the level of M-Banking use in the millennial generation of Private University. It was found that there are still many millennials at Private University who are still queuing to use ATMs for transfer services and various payments. This indicates that they do not have an application on their smartphone yet. The M-Banking application has the same features as those found in ATMs. This study uses Innovation Resistance Theory (IRT) to analyze the barriers in the innovation adoption process. IRT is a theory to measure the level of innovation resistance to users and potential users in adopting an innovation. In examining the inability of users to accept innovations, the idea of innovation resistance with three dimensions of innovation characteristics, user characteristics, and sales and marketing mechanisms to understand why people cannot accept innovations. The reason users resist innovation is because of the barriers generated by the change, and the conflicts brought about by the innovation (Badri, 2019).

There is a need to understand why customers reject the innovation rather than why they adopt it because customer perception is a significant source of market failure for innovations (Baptista & Oliveira, 2017). Therefore, the barriers to M-Banking adoption are essential information for banks in determining the proper steps so that millennials can accept M-Banking. The results of this study help banks to have better insight into the relationship between all barriers and consumer millennial generation innovations of M-Banking on bank services. This research contributes to a deeper understanding of consumer behavior and perceptions and helps banks to develop solutions to increase the adoption rate of M-Banking itself. This is what underlies the authors to take a study entitled the inhibiting factors for mobile banking adoption in the millennial generation of Private University.

Literature Review and Hypotheses Development

Innovation Resistance Theory (IRT) is a theory to measure the level of innovation resistance to users and potential users in adopting an innovation. In examining the inability of users to accept innovations, the authors first proposed the idea of innovation resistance with three dimensions of innovation characteristics, user characteristics, and sales and marketing mechanisms to understand why people cannot accept innovations (Berraies et al., 2017). The reason users resist innovation is because of the barriers generated by the change, and the conflicts brought about by the innovation. A difference between active and passive innovation resistance. Consumers form active innovation resistance through attributes related to certain products or services, implying that they decide to reject innovation because of certain aspects. Meanwhile, passive innovation resistance is a more abstract term that describes general resistance to innovation and change that is not directly related to the product or service (Heidenreich et al., 2015). Innovation resistance has been cited as one of the most important critical success factors for adopting technological innovations and has been described as a result of overcoming resistance. Consumer resistance plays an essential role in innovation success because it can hinder or delay consumer adoption. One of the leading causes of market failure to innovate is the resistance they encounter among consumers. While most research focuses on the success of innovation and the reasons for adopting it, IRT aims to explain why a person rejects an innovation (Evanschitzky et al., 2015).

According to a study conducted by Franceschinis et al. (2017), Gen Z's behavior can be grouped into four major components based on a solid foundation that Gen Z is a generation that seeks the truth. First, Gen Z is referred to as 'the undefined ID', where this generation respects the expression of each individual without giving a specific label. The search for identity makes Gen Z have a great openness to understanding the uniqueness of each individual. Second, Gen Z is

identified as 'the communaholic', a very inclusive generation interested in being involved in various communities by utilizing advanced technology to expand the benefits they want to provide. Third, Gen Z is known as 'the dialoguer', a generation that believes in the importance of communication in conflict resolution, and change comes through dialogue. In addition, Gen Z is open to the thoughts of each individual who is different and likes to interact with various individuals and groups. Fourth, Gen Z is referred to as 'the realistic', a generation that tends to be more realistic and analytical in making decisions than the previous generation. Gen Z is a generation that enjoys independence in learning and seeking information, thus making them happy to be in control of the decisions they choose. Gen Z recognizes the importance of having financial stability in the future. This is in line with the survey findings that revealed that Gen Y and Baby Boomers are a generation that tends to be more idealistic, especially in work.

Source: Heidenreich et al. (2015)

Figure 1. Millennial Generation Behavior

In general, innovation is a process and result of developing the use of a product/resource that has existed before to have more meaningful value. Innovation is defined as a process from the discovery of ideas and ideas, the production process, to the marketing process. Some resources say that the meaning of innovation is a renewal of various resources to provide more benefits/value-added for humans. A significant factor in determining the innovation process is advancing technology and science. Another definition explains innovation is to produce something new and valuable, either in products, processes, or services (Griliches, 1957). Companies that have succeeded in creating competitive advantage are companies that can create innovation and creativity through a practical and planned innovation process. Effective strategies to support these changes are needed to create new products and product development by increasing employees' creative abilities or company members. In the basic theory of innovation, innovation is divided into four types: product innovation, process innovation, marketing innovation, and company innovation. Product innovation is the introduction of goods or services that have never existed or have gone through a product development process that causes an increase in the benefits of the product. Process innovation is applying a new production method or distribution method or an old method that has been improved so that there is a significant increase in performance. Marketing innovation improves marketing performance through packaging policies, product placement, product promotion, or pricing. Marketing innovation aims to increase sales, meet consumer needs, open new markets, and place the company's products on the market. The last is corporate innovation, namely the application of new company methods to business practices, the company's workplace, or external relations (Im et al., 2007).

The ten types of innovation are divided into three broad categories: configuration, offering, and experience. The three groups represent the company's innovation strategy used to improve the company's internal aspects to promote better external results. Configuration is a company strategy used to improve the company's internal aspects to promote better external results, consisting of a profit model, network, structure, and process. Profit models are how companies get profits in new ways (new profits) that distinguish the company from its competitors. It can also mean how the company will benefit (Jin, 2013). Network innovation is a company's innovation in creating value

through relationships with other parties or the way companies use networks to create more innovative value. Structure innovation is related to improving the company's structure by compiling and aligning the talents and assets the company has to find a better development success or managing and aligning the talents and assets of the company in a way that creates innovative value. Process innovations are process-based innovations that analyze and increase company value (from input to output) (Moldovan et al., 2015).

An offering is a product performance and product system, in which a company develops different features and functionalities of different products or services that differentiate the company and its competitors through product quality such as product attributes, reliability, durability, and aesthetics. Product systems describe complementary services to strengthen product performance, and then experience consists of service, channel, brand innovation, and customer engagement. Service is a company innovation to strengthen product value (Nygrén et al., 2015). The company's channel is an innovation in the distribution chain of goods from producers to consumers. Brand innovation is a company innovation to strengthen product identity. Lastly is customer engagement, which analyzes and promotes consumer engagement with companies to create innovations (Ortiz-Villajos, 2017). This study focuses on the level of innovation resistance to M-Banking adoption to explain the relationship between innovation, innovation resistance, forms of innovation resistance, and barriers to adoption, so the researcher includes a conceptual model to understand this research (see figure 2):

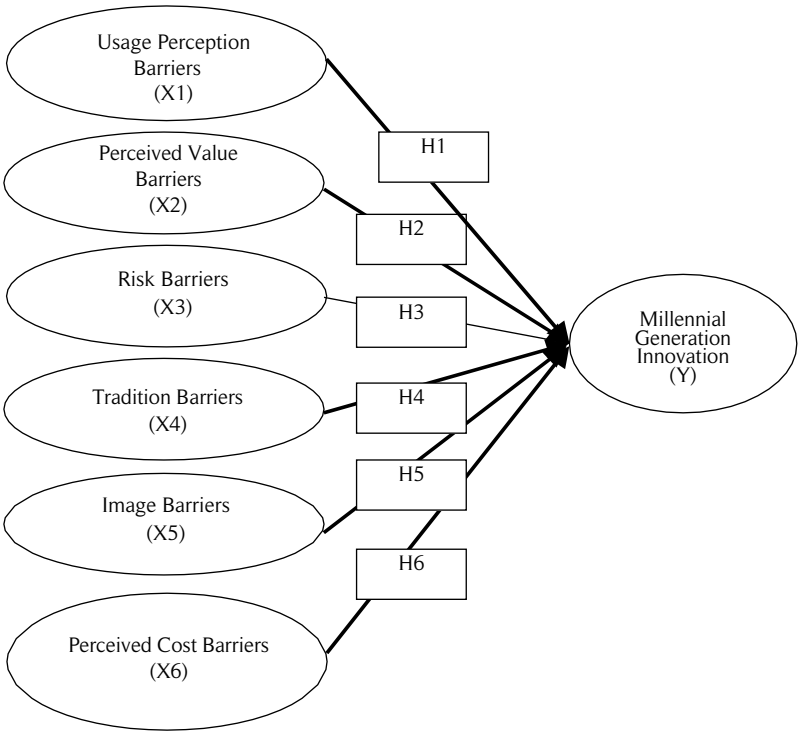

Figure 2. Research Conceptual Model

Usage Perception Barriers

The research from Lingelbach et al. (2012) states use of advanced technology does provide solutions to life's problems, but the digital lifestyle will increasingly depend on it. Any use of technology that is too excessive will hamper a person's intelligence performance so that he is trapped in a comfort zone and cause generational decline. Another research from Tan and Leby Lau (2016) shows factors that cause obstacles to the use of advanced technology are the complexity of the platform, which causes users to study in more depth. However, these factors are considered future challenges, so if the performance is in line with expectations, the millennial generation's innovation will also be high. Moorthy et al. (2017) states the usage perception barriers refers to an innovation's functional usability, which includes two aspects. The first aspect concerns whether the

new product or service is easy or difficult to use, and the second aspect refers to the degree of change consumers need when using innovative products that are mainly contrary to their habits.
H1: Usage perception barriers harm millennial generation innovation.

Perceived Value Barriers

The millennial generation shows behavior that prioritizes the value of a product when it is offered to the market compared to high profits. Qin and Prybutok (2008) states that if the existence of the product being offered becomes a trend and is viral, then they will compete to create new creative innovations. However, Ridgway et al. (1990) says if a product does not provide value as expected, the millennial generation will have difficulty creating innovations. Therefore, the millennial generation's research and technology development is highly prioritized so that the expected value follows actual performance. Radziwon and Bogers (2019) shows the value barrier is the resistance to innovation that does not meet user perceptions compared to other alternative products or services. Value barriers are based on the value of innovation. If an innovation offers substantial performance value over others, then there is no reason for consumers to switch.
H2: Perceived value barriers harm millennial generation innovation.

Risk Barriers

The study from Thøgersen et al. (2010) shows that risk barriers are closely related to the risks that users can accept in using products or services that they do not know about. With the changes that innovations bring to consumers, also certain risks are associated with them because a new product or service contains some uncertainty. Consumers who are aware of risk tend to resist innovation. Besides, the research from Terjesen and Patel (2017) says risk barriers consist of four types of risk, namely physical risk, economic risk, functional risk, and social risk. Physical risk illustrates that innovation can harm someone about privacy and personal information. Economic risk is the price paid for a new product or service that increases when the price is high. Furthermore, functional risk refers to the innovation function that creates fear because the product or service is relatively new and does not function properly. Social risk describes the fear of being judged by others when using a new product or service.
H3: Risk barriers harm millennial generation innovation.

Tradition Barriers

The previous study from Urala and Lahteenmaki (2007) shows tradition barriers are classified as causes of psychological innovation resistance and as disruptions to long-established and valued routines. For example, in the context of technological innovation, when someone uses self-service technologies without using salespeople or the general fear that technology will replace human work. Besides, the study from Sarstedt et al. (2019) says millennials struggle to achieve economic independence from their families by doing jobs lower than their qualifications. They grew up during the development of the Internet and the process of globalization. Therefore, they are the most knowledgeable, demanding, aware generation, and acting quickly. Millennials show greater acceptance of cultural differences and change by different ways of understanding equal rights and equality. In addition, because they are self-absorbed and dependent and display a high sense of independence, they engage less with behaviors that do not make them feel necessary or unattractive to them, as well as negative display traits such as narcissism, cynicism, and skepticism.
H4: Tradition barriers harm millennial generation innovation.

Image Barriers

Venkatraman (1991) says image barriers are individual negative thoughts about technological tools and perceptions of use complications. An image barrier is formed when consumers have negative expectations of the brand, industry, country, and the effects of the innovation. Image barriers are uniquely formed through prejudice or cliches. Meanwhile the assessment is considered subjectively. Besides, the study from Popa et al. (2017) shows the image factor poses one of the main barriers

to innovation. In their image barriers include established competition and uncertainty in publicity. Established competition tends to harm competitor innovation due to market share and temporary recognition of uncertainty associated with unforeseen future events related to customer behavior or competitors' strategic moves. Unhealthy image competition is another emerging barrier that follows innovators and has proven discouraging to engage in innovation. Another major obstacle to innovation related to the image factor is the lack of information, which makes innovation more difficult.
H5: Image barriers harm millennial generation innovation.

Perceived Cost Barriers

The research from Kaur et al. (2021) shows cost perception is how consumers expect that using a particular technology will cost money. This barrier is influenced by the costs felt by users in using innovative products. Cost-related factors can lead to barriers to innovation. An appropriate financial environment can support increased productivity and at the same time encourage innovation by facilitating technological innovation and low-cost production. In addition to the high cost of innovation and access to financial resources caused by mismanagement, which is often detrimental to the innovation process by not considering or encouraging good innovative ideas. Millennials generation faces more significant challenges because the much higher costs of innovation tend to vary with the organization's size.
H6: Perceived cost barriers harm millennial generation innovation.

Research Method

This research uses a quantitative approach to examine the relationship of variables to the object under study, which is causal. The sampling technique in this research uses the purposive sampling method with the category of student respondents and female students who do not use M-Banking and are included in the millennial generation at Private University. This category is considered not to have an exact number. Therefore, the determination of the minimum sample size in this study refers to the statement by Purwanto et al. (2021) that the number of samples as respondents must be adjusted to the number of question indicators used in the questionnaire, assuming n X 5 observed variables (indicators) up to n X 10 observed variables (indicators). In this study, there were 31 statement items. So, the minimum respondent limit for this study is 31 X 5 = 274, while the maximum limit is 31 X 10 = 310. Thus, 274 respondents will be taken.

This number is considered sufficient to represent the population to be studied because it has met the minimum sample limit. This study selected 274 millennial generation respondents, considering that this generational group is adaptive to the development of information technology. Data collection techniques in this study were observation techniques and questionnaires to distribute questionnaires online. The research instrument used in this study was the Likert scale. The analytical tool to measure the goodness of fit is the classical assumption test, coefficient of determination, and F-test. Meanwhile, the tool used to measure the effect of independent variables on dependent variable is the regression test (t-test). The equation model of this research is:

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e$$

Description:
Y = Millennial Generation Innovation
$\beta_{1,2,3,4,5,6}$ = Beta Coefficient
X_1 = Usage Perception Barriers
X_2 = Perceived Value Barriers
X_3 = Risk Barriers
X_4 = Tradition Barriers
X_5 = Image Barriers
X_6 = Perceived Cost Barriers
e = Error

Results and Discussion

Validity and Reliability Test

The criteria used to test the validity by setting a significant level (α) of 5%, the number of respondents is 274 people (n = 274), and the obtained r_{table} = 0.133. If the r_{test} is greater than the r_{table}, the statement is declared valid. The validity test results can be shown in Table 1.

Table 1. Validity Test Result

No.	Variables	Items	r_{test}	r_{table}	Result
1	Usage Perception Barriers	X1.1	0.790	0.133	Valid
		X1.2	0.831		
		X1.3	0.738		
		X1.4	0.747		
2	Perceived Value Barriers	X2.1	0.671	0.133	Valid
		X2.2	0.750		
		X2.3	0.754		
		X2.4	0.738		
		X2.5	0.714		
3	Risk Barriers	X3.1	0.864	0.133	Valid
		X3.2	0.897		
		X3.3	0.899		
		X3.4	0.904		
		X3.5	0.825		
4	Tradition Barriers	X4.1	0.783	0.133	Valid
		X4.2	0.879		
		X4.3	0.864		
		X4.4	0.782		
5	Image Barriers	X5.1	0.814	0.133	Valid
		X5.2	0.838		
		X5.3	0.818		
6	Perceived Cost Barriers	X6.1	0.837	0.133	Valid
		X6.2	0.819		
		X6.3	0.900		
		X6.4	0.827		
		X6.5	0.826		
7	Millennial Generation Innovation	X7.1	0.825	0.133	Valid
		X7.2	0.831		
		X7.3	0.814		
		X7.4	0.879		
		X7.5	0.864		

A reliability test is used to measure the consistency of respondents' answers if the questionnaire instrument is used in future studies. If the Cronbach Alpha value is > 0.60, it can conclude the instrument is reliable. The results of the reliability test can be seen in Table 2.

Table 2. Reliability Test Result

No.	Variables	Cronbach Alpha	Criteria	Result
1	Usage Perception Barriers	0.781	0.60	Reliable
2	Perceived Value Barriers	0.775		Reliable
3	Risk Barriers	0.926		Reliable
4	Tradition Barriers	0.845		Reliable
5	Image Barriers	0.777		Reliable
6	Perceived Cost Barriers	0.895		Reliable
7	Millennial Generation Innovation	0.824		Reliable

Based on the validity test results, it can be stated that all statement items in the instruments are valid. Furthermore, the reliability test result shows Cronbach's Alpha value is more than 0.60, so all instruments are reliable and it can be used in further analysis with consistently result.

Normality Test

A normality test is used to test each variable has a normal distribution. A good regression model is the data distribution is normal. The normality test in this study used the Kolmogorov-Smirnov statistic with the criteria used were the asymp. sig. value (2-tailed) and significance value (α) is 5% (0.05). If the test result shows asymp. sig. value (2-tailed) > 0.05, the data is normally distributed. The normality test results are shown in the Table 3.

Table 3. Normality Test Results

Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)	Criteria	Result
0.631	0.821	0.05	Normal

Based on normality test result, the asyimp. sig. value is 0.821 > 0.05, so it indicates this research data has met the normal distribution.

Multicollinearity Test

The multicollinearity test aims to analyze the correlation between the independent variables. A good regression model is no correlation between the independent variables. The tolerance and variance inflation factor (VIF) values can be seen to detect the presence or absence of multicollinearity in the regression model. If the tolerance value is > 0.10 or VIF < 10, there is no multicollinearity between the independent variables. The results of the multicollinearity test can be seen in the Table 4.

Table 4. Multicollinearity Test Results

No.	Variables	Tolerance	VIF	Result
1	Usage Perception Barriers	0.459	2.177	No symptoms of multicolinearity
2	Perceived Value Barriers	0.456	2.194	No symptoms of multicolinearity
3	Risk Barriers	0.643	1.556	No symptoms of multicolinearity
4	Tradition Barriers	0.545	1.833	No symptoms of multicolinearity
5	Image Barriers	0.425	2.359	No symptoms of multicolinearity
6	Perceived Cost Barriers	0.550	1.817	No symptoms of multicolinearity

From the multicollinearity test results, it shows each independent variables have a tolerance value > 0.10 or VIF < 10, so it can be concluded the regression model used is no symptoms of multicollinearity.

Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there are unequal variances or have various values so that the residual value is not constant. The Glejser test is used to detect heteroscedasticity in the regression model, if the sig. value > 0.05, there is no heteroscedasticity and vice versa. Based on the test results can be seen in Table 5.

Table 5. Heteroscedasticity Test Results

No.	Variables	t_{test}	Sig.	Result
1	Usage Perception Barriers	1.218	0.182	No symptoms of heteroscedasticity
2	Perceived Value Barriers	-1.094	0.212	No symptoms of heteroscedasticity
3	Risk Barriers	-1.386	0.168	No symptoms of heteroscedasticity
4	Tradition Barriers	0.990	0.324	No symptoms of heteroscedasticity
5	Image Barriers	1.536	0.127	No symptoms of heteroscedasticity
6	Perceived Cost Barriers	1.550	0.117	No symptoms of heteroscedasticity

The test results above show that all probability values in the research model are > 0.05, so it can be concluded that there is no heteroscedasticity.

Multiple Linear Regression

Multiple linear regression analysis aims to examine the effect of the independent variable on the dependent variable. The independent variables in this study include usage perception barriers, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers. While the dependent variable is millennial generation innovation. The result test can be seen in the Table 6.

Table 6. Multiple Linear Regression Test Result

Model		Unstandardized Coefficients		t_{test}	Sig.
		B	Std. Error		
1	(Constant)	28.075	1.304	21.536	0.000
	Usage Perception Barriers	0.131	0.132	2.990	0.004
	Perceived Value Barriers	0.582	0.103	5.639	0.000
	Risk Barriers	0.102	0.066	2.536	0.017
	Tradition Barriers	0.417	0.096	4.327	0.000
	Image Barriers	0.383	0.165	2.316	0.022
	Perceived Cost Barriers	0.225	0.086	2.599	0.010
Dependent variable: Millennial Generation Innovation F_{test} = 37.074 (0.000) R^2 = 0.56 (56%)					

Based on the table above, the constant values and regression coefficients are obtained so that the multiple linear regression equation is formed as follows:

Millenial Generation Innovation = 0.131 Usage Perception Barriers + 0.582 Perceived Value Barriers + 0.102 Risk Barriers + 0.417 Tradition Barriers + 0.383 Image Barriers + 0.225 Perceived Cost Barriers + e

Hypothesis Testing

t-test (Partial)

The t-test is used to determine the influence of independent variables on dependent variable. Based on the table above, it is known that the perceived barriers to use, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers partially have a significant effect on millennial generation innovation because t test value > t table and sig. value < 0.05.

Coefficient of Determination Test

The coefficient of determination is used to measure how far the model's ability to explain the variation of the dependent variable is. The value of the coefficient of determination is between 0 and 1. Based on the table above, the value of R Square is 0.56 or 56%, so this means that usage perception barriers, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers are able to explain variation of variable millennial generation innovations by 56%, while 44% influenced by other variables not examined in this model. The table above shows that the perceived value barrier partially contributes to explaining the variation of the millennial generation innovation variable with a coefficient value of 0.582. This also illustrates that when the millennial generation innovates, the perceived value becomes the main reason to act. In comparison, the lowest contribution is indicated by the risk barriers variable with a coefficient value of 0.102. This is because millennials dare to make decisions and do not consider the risks.

F-test (Goodness of Fit)

The F test is a test that aims to measure the goodness of fit of research model and the effect of independent variables simultaneously on dependent variable. Based on the results of the F-test, it shows that F-test value is 37.074 and sig. value is 0.000 < 0.05, so it can conclude that this research model is appropriate for measuring the millennial generation innovation variable. In addition, these results also indicate a simultaneous influence of independent variables (usage perception barriers, perceived value barriers, risk barriers, tradition barriers, image barriers, and perceived cost barriers) on dependent variable (millennial generation innovation).

Effect of Usage Perception Barriers on Millennial Generation Innovation

Usage perception barriers significantly affect millennial generation innovation with a significance value of 0.004 < 0.05. This research are in line with Tan and Leby Lau (2016); Álvarez and Crespi (2015), the main reason for this obstacle is user literacy, limiting them in securing confidential information on accounts when making decisions. The millennial generation is considered more adaptive in the development of information technology so that barriers do not become dominant in the innovation adoption process. Millennial students at private universities feel that they do not experience difficulties and confusion regarding the use and development of M-Banking. However, they are still considering adopting M-Banking in the future if necessary. This study also indicates that the more one believes that innovation is easy to do, the more one's willingness to adapt to technological developments such as using mobile banking increases. Barriers in dealing with perceived ease of use when using the latest technological sophistication can have implications for the behavior of the millennial generation in innovating. However, suppose the millennial generation feels at ease using the latest advanced technology such as mobile banking. In that case, they will have the desire to continue to innovate sustainably.

Effect of Perceived Value Barriers on Millennial Generation Innovation

Perceived value barriers significantly affect millennial generation innovation with a significance value of 0.000 < 0.05. The results of this study are in line with Qin and Prybutok (2008) and Ridgway et al. (1990), state that value perception barrier of technology is seen from the high-security guarantee against the use of sophisticated infrastructure. Barriers to perceived value in innovating using technological sophistication depend on each user, such as using M-banking, where the millennial generation feels that the technology's sophistication can meet their expectations. These results prove that the initiation of the millennial generation in innovating is influenced by the perception of value when comparing expectations and the results obtained.

Effect of Risk Barriers on Millennial Generation Innovation

Risk barriers significantly affect millennial generation innovation with a significance value of 0.017 < 0.05. The results of this study are in line with Thøgersen et al. (2010); Yoon and Chung (2018) which shows that innovation can occur because the millennial generation dares to face risks in the future. The university should direct the millennial generation to develop alternative solutions to avoid risks so they made lead to positive opportunities. Risk barriers can negatively affect millennial generation innovation if there are no facilities for self-competence development so they will have difficulty facing the demands of the digital era.

Effect of Tradition Barriers on Millennial Generation Innovation

Tradition barriers significantly affect millennial generation innovation with a significance value of 0.000 < 0.05. The results of this study are in line with Urala and Lahteenmaki (2007) and Zhao et al. (2019) which shows that the millennial generation prefers to use old ideas that are still useful rather than produce innovations that change current trends. This condition often occurs because the digital era is complicated to leave the comfort zone, thus hampering the ability of the younger generation to adapt to the rapid development of the times. Tradition barriers can be overcome by

the many digitalization stimuli universities implement, thus demanding the millennial generation to adapt and even provide innovations to the environment.

Effect of Image Barriers on Millennial Generation Innovation

Image barriers significantly affect millennial generation innovation with a significance value of 0.022 < 0.05. The results of this study are in line with Venkatraman (1991) and Zhang et al. (2015) which shows that the millennial generation is very concerned about image and engagement in social life, so this situation will encourage the emergence of the latest innovations that will lead to high engagement and engagement in social media. A bad image due to innovation will be a bitter experience for the millennial generation, but empowerment programs can overcome the barrier to creating positive innovations in digital era.

Effect of Perceived Cost Barriers on Millennial Generation Innovation

Perceived cost barriers significantly affect millennial generation innovation with a significance value of 0.010 < 0.05. The results of this study are in line with Kaur et al. (2021) and Yang et al. (2020) which shows that the perception of costs dramatically interferes with the implementation of new ideas conveyed by the millennial generation. Usually, the millennial generation shows new, solutive and creative innovations that positively impact the environment, but the significant cost requirement makes the millennial generation discourage it. So universities need to facilitate millennial generation innovation through easily accessible financing programs and encourage high creativity, so they do not feel burdened to give their best effort.

Implication and Conclusion

The study results can conclude that the perceived barriers to usage, perceived value barriers, tradition barriers, image barriers, and cost perception barriers have a significant effect on millennial innovation. The obstacles experienced by students in the city of Semarang, especially the millennial generation, are to be paid more attention to as a foundation for being more adaptive in innovating according to the development of the digital era. The results of this study are expected to be a reference for other universities to encourage students as the millennial generation to continue to improve their competence and innovation so that they can adapt to the digital industry. In future research, it is expected to use a broader scope of research to describe millennial generation innovations more comprehensively.

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